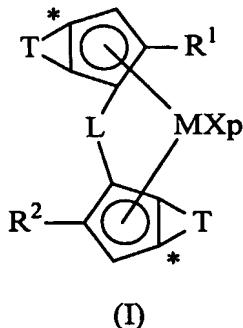


CLAIMS

1. A multistage process comprising the following steps:

step a) polymerizing propylene with optionally one or more monomers selected from ethylene and alpha olefins of formula $\text{CH}_2=\text{CHT}^1$, wherein T^1 is a $\text{C}_2\text{-C}_{20}$ alkyl radical in the presence of a catalysts system, supported on a porous organic polymer, comprising:

i) one or more metallocene compounds of formula (I)



wherein:

M is an atom of a transition metal selected from those belonging to group 3, 4, 5, 6 or to the lanthanide or actinide groups in the Periodic Table of the Elements;

p is an integer from 0 to 3, being equal to the formal oxidation state of the metal M minus 2;

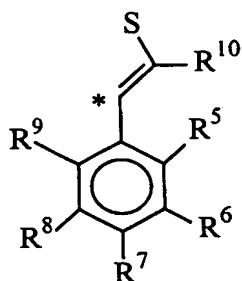
X, same or different, is a hydrogen atom, a halogen atom, or a R, OR, OSO_2CF_3 , OCOR, SR, NR₂ or PR₂ group, wherein R is a linear or branched, saturated or unsaturated $\text{C}_1\text{-C}_{20}$ alkyl, $\text{C}_3\text{-C}_{20}$ cycloalkyl, $\text{C}_6\text{-C}_{20}$ aryl, $\text{C}_7\text{-C}_{20}$ alkylaryl or $\text{C}_7\text{-C}_{20}$ arylalkyl radical, optionally containing heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements; or two X can optionally form a substituted or unsubstituted butadienyl radical or a OR'O group wherein R' is a divalent radical selected from $\text{C}_1\text{-C}_{20}$ alkylidene, $\text{C}_6\text{-C}_{40}$ arylidene, $\text{C}_7\text{-C}_{40}$ alkylarylidene and $\text{C}_7\text{-C}_{40}$ arylalkylidene radicals;

L is a divalent bridging group selected from $\text{C}_1\text{-C}_{20}$ alkylidene, $\text{C}_3\text{-C}_{20}$ cycloalkylidene, $\text{C}_6\text{-C}_{20}$ arylidene, $\text{C}_7\text{-C}_{20}$ alkylarylidene, or $\text{C}_7\text{-C}_{20}$ arylalkylidene radicals optionally containing heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements, and silylidene radical containing up to 5 silicon atoms;

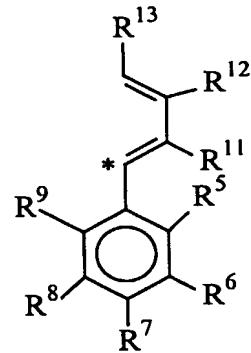
R^1 , is a linear or branched, saturated or unsaturated C_1 - C_{40} -alkyl radical, optionally containing one or more heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements;

R^2 is a branched C_1 - C_{40} -alkyl radical;

T , equal to or different from each other, is a moiety of formula (IIIa) or (IIIb):



(IIIa)



(IIIb)

wherein:

the atom marked with the symbol * is bonded to the atom marked with the same symbol in the compound of formula (I);

R^5 , R^6 , R^7 , R^8 and R^9 , equal to or different from each other, are hydrogen atoms or a linear or branched, saturated or unsaturated C_1 - C_{40} -alkyl, C_3 - C_{40} -cycloalkyl, C_6 - C_{40} -aryl, C_7 - C_{40} -alkylaryl, or C_7 - C_{40} -arylalkyl radicals, optionally containing one or more heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements; or two or more R^5 , R^6 , R^7 , R^8 and R^9 can join to form a 4-7 saturated or unsaturated membered rings, said ring can bear C_1 - C_{20} alkyl substituents;

R^{10} is a hydrogen atom or a linear or branched, saturated or unsaturated C_1 - C_{20} -alkyl, C_3 - C_{20} -cycloalkyl, C_6 - C_{20} -aryl, C_7 - C_{20} -alkylaryl, or C_7 - C_{20} -arylalkyl radicals, optionally containing one or more heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements;

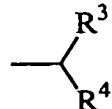
R^{11} , R^{12} and R^{13} , equal to or different from each other, are hydrogen atoms or a linear or branched, saturated or unsaturated C_1 - C_{20} -alkyl, C_3 - C_{20} -cycloalkyl, C_6 - C_{20} -aryl, C_7 - C_{20} -alkylaryl, or C_7 - C_{20} -arylalkyl radicals, optionally containing one or more heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements; or two or more R^{11} , R^{12} and R^{13} can join

to form a 4-7 saturated or unsaturated membered rings, said ring can bear C₁-C₂₀ alkyl substituents;

- ii) an alumoxane or a compound capable of forming an alkyl metallocene cation;

step b) contacting, under polymerization conditions, in a gas phase, ethylene with one or more alpha olefins of formula CH₂=CHT², wherein T² is a C₁-C₂₀ alkyl radical, and optionally with a non-conjugated diene, in the presence of the polymer obtained in step a).

2. The multistage process according to claim 1 wherein the catalyst system further comprises iii) an organo aluminum compound.
3. The multistage process according to claims 1 or 2 wherein step b) is carried out in the presence of an additional organo aluminum compound.
4. The multistage process according to anyone of claims 1-3 wherein M is titanium, zirconium or hafnium; X is a hydrogen atom, a halogen atom or a R group wherein R is a linear or branched, saturated or unsaturated C₁-C₂₀ alkyl, C₃-C₂₀ cycloalkyl, C₆-C₂₀ aryl, C₇-C₂₀ alkylaryl or C₇-C₂₀ arylalkyl radical, optionally containing heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements; L is selected from Si(Me)₂, SiPh₂, SiPhMe, SiMe(SiMe₃), CH₂, (CH₂)₂, (CH₂)₃ and C(CH₃)₂.
5. The multistage process according to anyone of claims 1-4 wherein R¹ is a methyl or ethyl radical; R² is a group of formula (II)



(II)

wherein R³ and R⁴, equal to or different from each other, are linear or branched, saturated or unsaturated C₁-C₁₀-alkyl radicals optionally containing one or more heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements; and R¹⁰ is a hydrogen atom or a linear or branched, saturated C₁-C₂₀-alkyl radical.

6. The multistage process according to anyone of claims 1 to 5 wherein in the compound of formula (I) R⁵, R⁶, R⁸ and R⁹, are hydrogen atoms and R⁷ is a group of formula -C(R¹⁴)₃ wherein R¹⁴, equal to or different from each other, are a linear or branched, saturated or unsaturated C₁-C₁₀-alkyl, C₃-C₁₀-cycloalkyl, C₆-C₁₀-aryl,

C₇-C₁₀-alkylaryl, or C₇-C₁₀-arylalkyl radicals, optionally containing one or more heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements.

7. The multistage process according to claim 6 wherein in the compound of formula (I) both T groups have formula (IIIb).
8. The multistage process according to claim 7 wherein in the compound of formula (I) in one T group, R¹² is a C₁-C₂₀ alkyl radical; and in the other T group R¹² being hydrogen.
9. The multistage process according to claim 6 wherein in the compound of formula (I) one T group has formula (IIIa) and the other one has formula (IIIb).
10. The multistage process according to claim 6 wherein in the compound of formula (I) both T groups have formula (IIIb) and R¹¹, R¹² and R¹³ are hydrogen atoms.
11. The multistage process according to anyone of claims 1 to 10 wherein the organic porous polymer has preferably porosity due to pores with diameter up 10 µm (100000 Å) higher than 0.1 cc/g.
12. The multistage process according to claim 11 wherein in the organic porous polymer the total porosity due to all pores whose diameter is comprised between 0.1 µm (1000 Å) and 2 µm (20000 Å) is at least 30% of the total porosity due to all pores whose diameter is comprised between 0.02 µm (200 Å) and 10 µm (100000 Å).
13. The multistage process according to anyone of claims 1-12 wherein:
 - in step a) from 5% to 90% by weight, with respect to the polymer produced in the whole process, of a propylene homopolymer or a propylene copolymer containing up to 20% by mol of derived units of one or more alpha olefins of formula CH₂=CHT¹ is produced, wherein T¹ is a C₂-C₂₀ alkyl radical; and
 - in step b) from 10 to 95% by weight, with respect to the polymer produced in the whole process, an ethylene copolymer containing from 5% to 90% by mol, of derived units of one or more alpha olefins of formula CH₂=CHT² is produced, wherein T² is a C₁-C₂₀ alkyl radical.
14. The multistage process according to claim 13 wherein the ethylene copolymer obtained in step b) contains up to 20% by mol of a non conjugated diene.
15. The multistage process according to claims 13 or 14 wherein in step a) a propylene homopolymer is produced.
16. The multistage process according to anyone of claims 13-15 wherein in step b) the comonomers are selected from propylene and 1-butene.

17. A propylene polymer compositions obtainable according to the process of anyone of claims 1-17 comprising:
 - a) 5% to 90% by weight, of a propylene homopolymer or a of propylene copolymer containing up to 20% by mol of derived units of one or more alpha olefins of formula $\text{CH}_2=\text{CHT}^1$ wherein T^1 is a $\text{C}_2\text{-C}_{20}$ alkyl radical; said propylene polymer or copolymer having isotactic pentads (mmmm) higher than 90%;
 - b) from 10 to 95% by weight of an ethylene copolymer containing from 5% to 90% by mol, of derived units of one or more alpha olefins of formula $\text{CH}_2=\text{CHT}^2$ wherein T^2 is a $\text{C}_1\text{-C}_{20}$ alkyl radical;
said composition having a flowability index equal to or lower than 2.